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EXAMINER

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**BEFORE THE BOARD OF PATENT APPEALS  
AND INTERFERENCES**

Application Number: 10/583,758  
Filing Date: June 21, 2006  
Appellant(s): ADAMS ET AL.

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Craig M. Lundell

For Appellant

**EXAMINER'S ANSWER**

This is in response to the appeal brief filed October 1, 2009, appealing from the Office action mailed April 1, 2009.

**(1) Real Party in Interest**

A statement identifying by name the real party in interest is contained in the brief.

**(2) Related Appeals and Interferences**

The examiner is not aware of any related appeals, interferences, or judicial proceedings which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

**(3) Status of Claims**

The statement of the status of claims contained in the brief is correct.

**(4) Status of Amendments After Final**

The appellant's statement of the status of amendments after final rejection contained in the brief is correct.

**(5) Summary of Claimed Subject Matter**

The summary of claimed subject matter contained in the brief is correct.

**(6) Grounds of Rejection to be Reviewed on Appeal**

The appellant's statement of the grounds of rejection to be reviewed on appeal is correct.

**(7) Claims Appendix**

The copy of the appealed claims contained in the Appendix to the brief is correct.

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**(8) Evidence Relied Upon**

<b>WO 02/099014 A1</b>	<b>BENARD ET AL</b>	<b>12/2002</b>
<b>US 6699385 B2</b>	<b>MILLER</b>	<b>03/2004</b>
<b>WO 05/044954</b>	<b>BRADFORD</b>	<b>05/2005</b>

**(9) Grounds of Rejection**

The following ground(s) of rejection are applicable to the appealed claims:

***Claim Rejections - 35 USC § 103***

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. **Claims 1-4, 6-15, and 17-22 stand rejected under 35 U.S.C. 103(a) as being unpatentable over BENARD ET AL (WO 02/099014 A2) in view of MILLER (US 6699385 B2) and BRADFORD (WO 05/044954 A1).**

3. With respect to claims 1-4 and 12, BENARD discloses [see abstract; pg 4, lines 18-22; and pg 12, lines 4-9 & lines 33-35] a process to prepare a base oil starting from a slack wax, which contains other wax sources such as a Fischer-Tropsch derived wax, feedstock by contacting the feedstock in the presence of hydrogen with a catalyst under hydroisomerization conditions and performing a subsequent pour-point reducing step (solvent-dewaxing) to obtain the base oil, which is analogous to reducing the wax content of a Fischer-Tropsch wax followed by solvent dewaxing as required in claim 1(c) of the instant application.

4. BENARD does not appear to explicitly disclose wax content of the intermediate product.

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5. However, MILLER discloses [see, e.g., the abstract & column 4, lines 25-35] a process for producing a base oil by providing a heavy waxy feed stream having an initial boiling point greater than 900° F (480° C) and more preferably 950° F (510° C) and a paraffin (wax) content of at least 80%, which satisfies the limitations of claims 2 and 3 of the instant application. The initial boiling point implies that a 0 wt % recovery boiling point at temperatures less than possibly 510° C, or, conversely, that the 10 wt % recovery boiling point will be greater than possibly 510° C, as required in claim 2 of the instant application. Furthermore, since the initial boiling point of MILLER is greater than 510° C, it is obvious that the initial boiling point may be 550° C, which satisfies the requirement of claim 4 of the instant application. Furthermore, it is expected that the wax content of the product of the hydroisomerization step of BENARD is inherent to the process since the feedstock, catalyst, and reaction conditions are similar to those in the instant application [page 12, lines 4-26].

6. At the time of the invention, it would have been obvious to one of ordinary skill in the art to modify the feed of BENARD to include the heavy wax of MILLER to obtain a plurality of fuel fractions as taught by MILLER [column 2, line 5-column 3, line 5]. Therefore, the invention as a whole would have been *prima facie* obvious to one of ordinary skill in the art at the time the invention was made.

7. BENARD does not appear to explicitly disclose transporting the feed from step (a) from a remote location to another location closer to the end user (step (b)).

8. However, BRADFORD discloses [pg 1 line 1 to pg 2, line 6 & pg 7, line 29 to pg 8, line 21] a process of transporting a hydrocarbon product from a remote location via a ship to a location closer to end users.

9. At the time of the invention, it would have been obvious to one of ordinary skill in the art to modify the process of BENARD to include the transport process of BRADFORD in order to reduce the high capital expenditures of other transporting processes such as pipelines or liquefying into a natural gas, which requires liquefaction and re-gasification plants each transport terminal as taught by BRADFORD [pg 1, lines 11-14]. Therefore, the invention as a whole would have been *prima facie* obvious to one of ordinary skill in the art at the time the invention was made.

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10. While neither MILLER nor BENARD appears to explicitly disclose that the viscosity of the haze free base oil has the required kinematic viscosity as recited in the preamble of claims 1 and 12, it is expected that the requirement is inherent since both the intermediate products and the solvent dewaxing steps [page 12, line 35 to page 13, line 23] are similar. Furthermore, neither MILLER nor BENARD explicitly require the incorporation of a viscosity modifier, the absence of which is further required in the preamble of claim 12.

11. With respect to claims 13-15, MILLER discloses [see, e.g., the abstract & column 4, lines 25-35] a process for producing a base oil by providing a heavy waxy feed stream having an initial boiling point greater than 900° F (480° C) and more preferably 950° F (510° C) and a paraffin (wax) content of at least 80%, which meets the limitations of claims 2 and 3 of the instant application. The initial boiling point implies that a 0 wt % recovery boiling point at temperatures less than possibly 510° C, or, conversely, that the 10 wt % recovery boiling point will be greater than possibly 510° C, as required in further required in claim 2 of the instant application.

12. Furthermore, since the initial boiling point of MILLER is greater than 510° C, it is obvious that the initial boiling point may be 550° C, which satisfies the requirement of claim 4 of the instant application.

13. With respect to claims 6-8 and 16-19, MILLER discloses [column 5, line 22 to column 6, line 36] a similar hydroisomerization catalyst to that taught by BENARD [see, e.g., pg 7, lines 22-26 & pg 11, lines 30-31] and disclosed in the instant application (i.e., a Group VIII metal such as nickel on a suitable refractory metal oxide carrier such as silica, alumina, or silica alumina). Furthermore, the reaction conditions (BENARD [pg 12, lines 4-26] and MILLER [column 7, lines 30-50]), and feeds are similar between the aforesaid references and the instant application. Since the feed and reaction conditions between the aforesaid references and the instant application are similar, it is obvious that the intermediate product would possess the same properties as required in claims 6-8 of the instant application.

14. With respect to claims 9-10 and 20-21, BENARD discloses [see, e.g., pg 4, lines 7-10; pg 5, lines 23-30; pg 7 lines 22-26; & pg 10, lines 20-24] wherein the hydroisomerization catalyst is an amorphous and/or a molecular sieve-based catalyst comprising a silica-alumina carrier and a Group VIII metal, particularly, nickel.

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15. With respect to claims 11 and 22, BRADFORD discloses [abstract & pg 7, line 32-pg 8, pg 8, line 24] that transporting is by means of a ship wherein the hydrocarbon product is loaded onto empty product containers in the ship that have been purged with nitrogen, wherein the nitrogen was obtained by separating oxygen from air with the oxygen being used in the Fischer-Tropsch process to create the hydrocarbon product.

#### **(10) Response to Argument**

The applicant appears to argue that Bradford is directed to a process to transport methanol of other hydrocarbon product and does not disclose partially dewaxing a Fischer-Tropsch (F-T) wax to make it more transportable.

Bradford discloses that the other hydrocarbon product is a F-T product prepared by methods described in EP 776959, US 4943672, US 5059299, WO 9934917, and WO 9920720 [page 6, lines 13-20], which are the same references used in the instant specification describing methods of producing the F-T feedstock used therein, that may be subject to hydroisomerization to reduce its congealing point and increase its pumpability prior to being shipped to a different location to be further refined [page 6, lines 24-32], such as being subject to a dewaxing process. BRADFORD certainly discloses further refining of the hydroisomerized F-T product and provides an example on page 7, lines 16-17 by teaching dewaxing after a hydrocracking/hydroisomerization process. Therefore, since BRADFORD suggests further processing the transported product at another location, it would be obvious to apply conventional downstream processing such as solvent dewaxing as taught by Benard on page 12, lines 27-35.

The applicant appears to argue that Benard does not fully disclose that the wax content of the F-T product is reduced by 10 to 35 wt % so that it may be transported from a remote location.

The prior Office actions combined the feedstock of Benard with Miller. While Benard does not appear to explicitly disclose the reduction in wax content of the F-T feed product, it is expected that the product of the hydroisomerization of modified Benard would inherently have the required characteristics, since the feedstock of modified Benard is the same as disclosed in the instant application, as is the catalyst and reaction conditions of Benard. For example, Benard teaches a catalyst prepared by the method of EP 666894 [page 11, line 14], which is

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the same method taught in the instant application. The reaction conditions of Benard include a preferred temperature range of 320 to 360° C (compare to 300 to 370° C in the instant application), a preferred pressure range of 40 to 90 bar (compare to 20 to 80 bar in the instant application), a preferred hydrocarbon WHSV between 0.5 to 1.2 kg/L/hr (compare to 0.5 to 2 kg/L/hr in the instant application), and a preferred ratio of hydrogen to hydrocarbon between 500 to 2000 L/kg (compare to 250 to 2500 L/kg in the instant application) [see page 12, lines 4-26 of Benard].

With respect to the combination of references, Miller was combined with Benard, wherein the motivation to combine was to obtain a plurality of valuable fuel fractions including a low haze base oil and a high value wax [column 2, line 5 to column 3, line 5 of Miller]. The motivation to combine Bradford was to reduce the high capital expenditures of other transporting processes such as pipelines or liquefaction into natural gas, which requires liquefaction and re-gasification plants at each terminal of a transportation system [page 1, lines 11-14 of Bradford].

**(11) Related Proceeding(s) Appendix**

No decision rendered by a court or the Board is identified by the examiner in the Related Appeals and Interferences section of this examiner's answer.

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

/Brian McCaig/

Conferees:

/Glenn A Caldarola/  
Acting SPE of Art Unit 1797

/Walter D. Griffin/  
Supervisory Patent Examiner, Art Unit 1797